



OWEN BROTHERS METERING UK

How to Read a Digital Sub-Meter

Commercial and Industrial Guide

Single Phase · Three Phase · CT Meters · Rogowski Coil · Solar PV · Modbus

2026 Guide

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What Is a Digital Sub-Meter?

FUNDAMENTALS

A privately installed meter that sits downstream of the main utility supply, measuring electricity for a specific unit, tenant, or circuit.



Single phase DIN rail meters (up to 100A)



Three phase direct connected meters



Three phase CT operated meters



Three phase Rogowski coil meters



Solar PV import/export meters

Unlike a utility meter, a sub-meter belongs to the property owner — used to bill tenants and allocate costs.

How to Read a Single Phase DIN Rail Meter

The most common sub-meter type in HMOs and light commercial applications

1

Locate the Meter

Mounted on a DIN rail inside a distribution board, consumer unit, or dedicated enclosure

2

Read the Display

LCD shows total kWh consumed since installation — read digits left to right

3

Record the Reading

Write down the full number including leading zeros. Ignore digits after a decimal point

4

Calculate Consumption

Subtract previous reading from current reading for the billing period



Example: Current reading 14,827 kWh minus previous reading 13,940 kWh = 887 kWh consumed for the period.

Three Phase Direct Connected Meters

Used where full load current passes directly through the meter, typically up to 100A. Many meters cycle through extra readings: voltage, current, and power factor per phase — useful for diagnosing uneven loading.

- 1 Locate the Meter** DIN rail inside distribution board or dedicated metering enclosure, near main incoming supply
- 2 Read Primary kWh** Default screen shows total accumulated kWh — this is your main billing reading
- 3 Scroll for Parameters** Press display button to cycle through V, A, and PF readings per phase for diagnostics
- 4 Record & Calculate** Note total kWh, subtract previous reading to determine period consumption

CT Operated Three Phase Meters

The meter type that causes the most reading errors

1 Confirm the CT ratio programmed into the meter (e.g. 200:5)

2 Check phase balance — mismatched current can flag a fault

3 Record total kWh and subtract previous reading



Key Point: No Manual Calculation Needed

On a correctly configured, MID-approved meter, the CT ratio is already applied internally. The kWh figure shown is the actual reading — manually multiplying it produces a wildly inflated, wrong figure.

Always verify the configured ratio matches the installed CT ratio.

Rogowski Coil and Solar PV Meters



Rogowski Coil Meters

Used for high current industrial loads or retrofit where supply cannot be interrupted.

How it's different: Flexible coil wraps around the conductor, not a rigid CT ring.

Reading: Same as a CT meter — kWh display already accounts for the coil's ratio. No manual calculation needed.



Solar PV Import / Export Meters

Bi-directional meters track both imported and exported electricity separately.

IMP: Electricity drawn from the grid

EXP: Surplus sent back to the grid

Critical: Never mix up the two readings — especially for FIT or SEG payments.

Modbus and Pulse Output for Automated Billing

For sites managing multiple sub-meters, manual reading is impractical

Modbus RTU (RS485)

Multiple meters daisy-chained on one cable, polled by a central controller. Detailed real-time data: kWh, voltage, current, power factor per phase.

Pulse Output

Simple, lower-cost option. Meter generates a pulse per unit of energy used — counted by a separate data logger. No full BMS needed.



Owen Brothers Remote Monitoring

4G industrial grade modem with multi-network SIM attaches to compatible sub-meters and transmits readings to the OBmeters.com portal. View consumption, voltage, current, and power factor from any laptop, tablet, or phone — no site visits required.



Common Mistakes When Reading Sub-Meters



Including Red Digits

Decimal fractions are not part of the billing reading — ignore anything after the decimal point



Manually Multiplying CT Readings

Modern MID-approved meters already apply the CT ratio internally — don't double-count



Mixing Up Import / Export

On solar PV bi-directional meters, confirm IMP vs EXP before recording — never combine



Ignoring Phase Imbalance

Significantly different current across phases can signal a wiring or CT installation fault



Not Recording the Date

Without consistent dated readings, calculating period consumption becomes guesswork

Owen Brothers Sub-Meter Range



Single Phase

OB111, OB112, OB113-MOD, OB115-MOD



Three Phase Direct

Standard direct connected meters



CT Operated

OB434CT, OB4373CT, OB737CT



Rogowski Coil

OB4373, OB4374 in IP66 enclosure



Solar PV

Bi-directional import/export meters



Remote Monitoring

4G modem + OBmeters.com portal

Summary



Single phase meters: read left to right, ignore decimals, subtract previous reading



Three phase meters: same principle, scroll for voltage/current/power factor diagnostics



CT operated meters: no manual multiplication needed on correctly configured meters



Rogowski coil meters: read exactly like CT meters, ratio applied automatically



Solar PV meters: keep import and export readings always separate



Modbus and remote monitoring eliminate manual reading rounds entirely

Full guide: owen-brothers.com/how-to-read-an-electric-sub-meter-uk